"SANITAS,"

THE ONLY TRUE ANTISEPTIC AND DISINFECTANT COMBINED.

(Protected by Letters Patent.)

NON-POISONOUS, SANITARY, PRESERVATIVE.

The "Sanitas" Company.

OFFICES:—57, MOORGATE STREET, LONDON, E.C.

WORKS:—LETCHFORD'S BUILDINGS, THREE COLT LANE, BETHNAL GREEN, LONDON.

NOTICE.

"SANITAS" may be had in several forms, specially prepared for each particular purpose.

(1) In bottles at 1s., 1s. 6d., and 2s. 6d. This is *aromatic* "Sanitas" of the best quality, and is intended for household use and for the finer purposes—such as hospital applications.

(2) *Odourless* "Sanitas" may be had in bottles at same prices, where preferred, for any of the above purposes, or for household preservative purposes. It is specially useful for keeping meat, beer, milk, &c. &c.

(3) For hospital disinfecting purposes, sanitary purposes generally, and ordinary antiseptic and disinfecting treatment, processes of purification, &c. on a large scale, it is prepared in three qualities, differing in strength.

That quality at 5s. per gallon is the best agent for all ordinary purposes.

That at 10s. per gallon is stronger, and is more particularly recommended for use where the nuisance or evil to be attacked is greater; and

That at 20s. per gallon is destined for the finer purposes, where quantity is wanted.

(4) "SANITAS" for toilet use is most luxurious, and is specially prepared in bottles of 16 ozs. at 4s.

"SANITAS,"

THE

ONLY TRUE ANTISEPTIC AND DISINFECTANT COMBINED.

In 1856 M. Ramel called attention to the great value of the Eucalyptus tree, and claimed for it the power of destroying the miasmatic influence of marshy districts, and soon afterwards Sir W. Macarthur confirmed these observations and published his results.

In 1870 Dr. Gimbert, of Cannes, in a memoir entitled "*Eucalyptus globulus*: its Value in Agriculture, Hygiene, and Medicine," gave precision, by experiment, to the good results above set forth, and in course of time the tree of which we are writing became known as "the fever-destroying tree."

The febrifugal properties of the bark and leaves of this plant have been testified to by many practitioners, including M. Pepin, Dr. Carlotti, Dr. Lorinser, Professor Gubler, Dr. Vieller, Dr. Maclean, and Dr. Gimbert; but without staying to dwell upon this matter, we pass to more general considera-

tions, affecting not only the various species of Eucalyptus, but all kinds of pine and other trees which secrete the so-called essential oils.

Mr. R. D. Glover relates that by planting the Eucalyptus in the cloisters attached to an old monastic institution in the Campagna, the place became rid of the pestilent malaria which had hitherto rendered it desolate and uninhabitable. Mr. Glover also brought from the monks residing there, samples of oil secreted by these trees, and also an alcoholic tincture of the wood, used as a medicine in fevers, &c. Similar evidence is forthcoming from places in the vicinity of the Douro in Spain.

On the 30th of April last, Dr. Fedeli presented a paper, on the properties of the *Eucalyptus globulus*, to the Roman Academy of Medicine, and adduced much stronger evidence, showing that the plant possessed powerful virtues as a febrifuge. Wherever the plant has been cultivated, endemic malaria has henceforth disappeared. Dr. Fedeli also described the curative powers of various preparations made from the plant, notably the alcoholic tincture.

Since Dr. Fedeli's paper was published, the Italian Government has supplied landholders with large quantities of slips of the tree, for forming plantations in all malarious districts. It has been difficult to understand these virtues of the Eucalyptus, but recent researches on the oxidation of essential oils have led to an explanation as interesting as it is simple.

The various species of pine or fir tree have a wide geographical distribution, and the reason in nature for this will be seen immediately. All these trees secrete oils consisting originally of hydrocarbons, known in science as terpenes; but for our present considerations they may be collectively and individually regarded as turpentine. Turpentine is, indeed, distilled largely from the oily and resinous matters formed in these trees, while oil of eucalyptus has been shown by A. Faust and J. Homeyer to consist mainly of terpene.

Now, if these naturally-secreted oils be allowed to remain in the tree, they volatilise in great measure, and undergo oxidation in the atmosphere. Some part, however, is polymerised and oxidised by the air while yet in the tree, and thus are produced those resinified substances and camphors which generally accompany the natural oils.

In order to ascertain what becomes of that part of the fragrant oil which volatilises, and how it exercises its health-preserving and fever-destroying action, Mr. Kingzett undertook a laborious research extending over some years, the results of which have been published in various journals, and read before various learned societies, and a summary of these is published in the Journal of the Society of Arts for February 16, 1877.

Let it be distinctly understood that all the various oils secreted by pine and fir trees contain a common principle; this has been established beyond all

doubt; collectively and individually, they may be regarded as turpentine.

Now, Mr. Kingzett has shown, that when turpentine undergoes atmospheric oxidation in the presence of water, a change takes place, which eventually results in the production of peroxide of hydrogen, camphoric acid, camphor, &c.; and pursuing this inquiry with Mr. Maximilian Zingler, **these gentlemen have succeeded in actually isolating the health principle, as it may be termed, of the pine and eucalyptus tree.** So that now, there can be prepared by a simple process in which nature is imitated, and on a cheap scale, a solution containing these antiseptic and disinfectant principles. **To this solution has been given the appropriate name of "Sanitas."**

As already stated, "Sanitas" contains peroxide of hydrogen, a body nearly related to ozone and camphoric acid, which besides being related chemically to salicylic acid, has even greater antiseptic and disinfecting powers. That this is so, is proved by the experiments we here quote:—

"EXPERIMENTS WITH 'SANITAS.'

Article experimented upon.	Antiseptic used.	Result.	With equal Volumes of Water and *no* Antiseptic.
Egg Albumen. 50 c.c. containing 10 c.c. white of egg in each case.	5 c.c. Neutralized by soda = 10 per cent.	Observed 24 days. Still fresh as at first.	Began to stink on 2nd day after.
Must from Muscatel Grapes, 50 c.c. taken in each experiment.	10 c.c. Neutral antiseptic = 20 per cent.	No fermentation even after days.	Soon fermented at 40° C., giving alcohol.
Milk. 200 c.c. in each case....	10 c.c. Neutral antiseptic = 5 per cent.	Faintly acid on 5th day after. Solid on 7th day.	Solid and sour on 3rd day after.
Urine. 60 c.c. in each case.....	10 c.c. Antiseptic = 16 per cent.	Unchanged after 7 days. No longer observed.	Bad smell 2nd day. Stank on 3rd day.
Brain matter. 10 grms. in each case.	10 c.c. Antiseptic	Kept fresh 15 days. No longer observed.	Stank on 3rd day after.
Milk. 100 c.c. in each case....	10 c.c. Antiseptic = 10 per cent.	Liquid, and sweet for 9 days ..	Sour and solid on the 2nd day after.
Flour paste. 100 c.c. in each case.	10 cc. Antiseptic = 10 per cent.	Fresh after 19 days. No longer observed.	Stank on the third day.
Milk. 160 c.c. in each case	10 c.c. Antiseptic = 6 per cent.	Solid and sour after 7 days	Bad on the 2nd day. Very bad on 3rd day.
Bitter Beer. 160 c.c. in each case.	10 c.c. Antiseptic = 6 per cent.	Still good and unchanged on 7th day. No longer tested.	Thin films on 2nd day. Fungus over surface on the 3rd day.

All the foregoing experiments were made during October and November, 1875.

Those now to be given were made during June, July, and August, 1876. The antiseptic solution employed was not so strong as that used above.

Article experimented upon.	With 3.5 c.c. Antiseptic = 10 per cent.	With 1.75 c.c. Antiseptic = 5 per cent.	With 4 c.c. Neutral antiseptic = 11 per cent.
White of egg. 35 c.c. in each case.	Kept fresh for 35 days; then mould appeared. No stink.	Fresh for 21 days; then mould appeared. No smell.	Fresh for 35 days; then mould appeared. No smell.

"The only other alteration in each case was a slight darkening to brown in the colour of the albumen. But after each experiment the albumen had still its coagulable character, and was not otherwise changed.

"After dipping in the same solution, brain matter also kept fresh for several days, whereas without such treatment it stank on the next day.

"Milk was also preserved for a much longer period than without, but not for so long a period as in the winter months.

"Beer was also thoroughly preserved for a number of days, as long as observed; so also was blood serum. Stinking water recovered and remained good with it for months.

"In conclusion, it may be stated that the influence of less percentages than those detailed have never been examined seriously, but there can be no doubt that much less quantities could be used in many cases with the same effect as those described.

"The experiments that follow next were conducted in order to ascertain to which constituents of my solution the antiseptic and disinfecting character is to be ascribed. They are as follows :—

"CAMPHORIC ACID EXPERIMENTS.

"0·3 grm. of the acid in water was sufficient to preserve 400 c.c. milk unaltered for seven days. After that a skin appeared, and a cheesy taste. But it did not go solid and sour till the eleventh day.

"0·1 grm. camphoric acid kept 55 c.c. of flour paste fresh for eleven days. On the twelfth day it became sour.

"0·1 grm. camphoric acid preserved 50 c.c. grape juice in a warm oven from fermentation permanently so far as could be observed.

"0·1 grm. camphoric acid kept 15 c.c. egg albumen and 10 c.c. water fresh for twenty-one days. Became mouldy afterwards.

"0·1 grm. camphoric acid preserved 200 c.c. bitter beer unaltered for eleven days in an open vessel. It afterwards became covered with fungus.

"PEROXIDE OF HYDROGEN EXPERIMENTS.

"10 c.c. preserved 400 c.c. milk for six days, meanwhile oxygen was slowly evolved ; thick and sour on the eleventh day.

"5 c.c. preserved 47 c.c. grape must from fermentation for some twenty-four hours, then bubbles of oxygen were liberated ; finally it had an odour like apples.

"5 c.c. preserved 15 c.c. albumen (egg) + 10 c.c. water fresh for very many days.

"5 c.c. preserved 400 c.c. bitter beer unaltered for twenty-six days ; then sour ; fungus did not appear.

"5 c.c. preserved 30 c.c. flour paste for six days ; afterwards went bad.

"EXPERIMENTS WITH SALICYLIC ACID.

"0·1 grm. preserved 100 c.c. bitter beer for twenty-five days, but gave to it a most peculiar taste—spirituous, bitter, sweet. No longer observed.

"0·1 grm. preserved 100 c.c. milk for four days. On the fifth it was sour and cheesy, and on the seventh it stank.

"0·1 grm. preserved 50 c.c. flour paste for a number of days, but acquired even on the fourth day a very stale odour.

"0·1 grm. preserved 23 c.c. egg albumen, and 12 c.c. water fresh for four days. On the fifth it stank.

"These experiments, as also those with camphoric acid and peroxide of hydrogen, were all conducted during October, November, and December, 1875."

A careful consideration of these tables shows that "Sanitas" possesses a power of preservation and disinfection superior to that of its own components taken singly, and to that of any other known antiseptic or disinfectant. Moreover, the combination of these two properties in one and the same substance has hitherto been unknown. Certainly it has

long been recognised that peroxide of hydrogen is one of the most powerful disinfectants, from the fact that it readily parts with nascent oxygen, which destroys effete matters. And although it has been extensively used by Dr. Day, of Geelong, in preventing the spread of contagious fevers, &c., its great expense has hitherto proved an insuperable bar to its employment on any large scale. But by our process this peroxide is produced at a very cheap rate, and simultaneously with camphoric acid, which has all the characters of salicylic acid, to which it is chemically allied, while it has further the advantage of greater solubility in water. The presence of camphor and other bodies in the solution under description is likewise conducive towards securing the results sought for.

"Sanitas" is non-poisonous, and has proved of great use as a preventive agent against all kinds of contagious diseases; it is aromatic in odour, and may be applied to all kinds of furniture and linen without damage. This latter property is in no small measure due to its volatile nature. Not only can it be employed in houses and hospitals where certain sanitary re-agents cannot be used, but it admits also of extensive use in watering roads, streets, and for the purification of public urinals, stables, &c. &c.

There is also the strongest evidence to show that "Sanitas" is invaluable as a remedy in the foot and mouth disease of cattle, and as an agent to effect the bleaching of cotton and silk goods by virtue of the peroxide of hydrogen it contains.

On a separate sheet we give testimonials showing how wide the range of usefulness is in which "Sanitas" may be applied, and on a further paper the directions for its use are given.

Here we particularly wish to call attention to a paper published by Dr. Day, of Geelong (*Medical Times and Gazette*, March 10, 1877), who has successfully treated 109 cases of scarlet fever out of a total number of 115, by anointing the bodies of the patients with lard containing *peroxide of hydrogen*. Now "Sanitas" is a solution of peroxide of hydrogen and camphoric acid, and is capable of liberating or evolving, on contact with putrescible or disease-bearing matters, several times its own volume of *nascent oxygen*. That is to say, "Sanitas" has a power, when properly applied, of preventing such contagious diseases as scarlet fever, small-pox, &c.&c. possessed by no other antiseptic and disinfectant. In proof of this it may be stated that a small percentage of "Sanitas" is not only powerful to totally and for ever prevent the decomposition of such decomposable matters as blood serum, but has also such an effect on various ferments, that these, which are ordinarily viewed as the active causes of diseases, are rendered absolutely harmless.

Standard, Feb. 10, 1877.—At the meeting of the Society of Arts on Thursday evening, under the presidency of Dr. Ernest Hart, a paper "On some Processes of Nature's Hygiene (leading to Improvements in the production of Antiseptics, Disinfectants, and Albumen of Commerce)," was read by Mr. C. T. Kingzett, F.C.S. After premising that the subject of the public health was a matter that was commanding earnest attention, the lecturer proceeded in a long paper to trace the first discovery of ozone and peroxide of hydrogen, and submitted that the presence of ozone in the air had never been indisputably established, though there could be little doubt of its existence, but no method yet proposed was competent to distinguish between ozone and peroxide of hydrogen as they occurred in the atmosphere. The reader next touched on his researches, having for their immediate object the elucidation of the nature of the active principle which is formed when turpentine and other oils and substances underwent atmospheric oxidation, illustrating the results by certain chemical formulæ. It had been at first difficult to understand the virtues of the Eucalyptus as a preventive of malaria, but the explanation was both interesting and simple. The various species of pine or fir trees all secreted oils that for present consideration might be considered as turpentine, which, if allowed to remain in the tree, volatilised in great measure, and underwent oxidisation in the atmosphere. In pursuing his investigations he found that when turpentine was exposed to a current of air in the presence of water, oxygen was absorbed, part of the oil resinified, and the rest was oxidised into a compound, unstable in the presence of water, and splitting up thereby into peroxide of hydrogen and camphoric acid, the former of which had long been acknowledged to be one of the most powerful disinfectants known to chemists. The result of his experiments in the direction of the oxidation of turpentine was the discovery of a solution which had been christened "Sanitas," and which he claimed to possess a power of preservation and disinfection superior to that of its own components taken singly, and to that of any other known antiseptic or disinfectant, the presence of camphor and other bodies being

present being conducive towards securing the result sought for. By a similar process Mr. Zingler and himself had also been able to prepare a blood albumen of a whiteness and quality comparable to egg albumen, the use of which would restore a large amount of food to the market. This was the first instance on record in which a natural process of atmospheric purification had been imitated to perfection ; until, in fact, there could now be repeated on a commercial scale that which in pine and eucalyptus forests constituted one of the most efficacious processes of nature's hygiene. The lecture was accompanied by various experiments, and was followed by a discussion, a vote of thanks to the lecturer closing the proceedings.

Echo, Feb. 9, 1877.—Last evening, at a meeting of the Chemical section of this Society, presided over by Dr. Ernest Hart, an interesting communication was read by Mr. C. T. Kingzett, F.C.S., upon " Some Processes of Nature's Hygiene." Mr. Kingzett has for some years been engaged upon an exhaustive scientific research with a view to determine what are the oxidation products of turpentine and essential oils generally, and in the course of his experiments in this direction he discovered that turpentine on oxidation produces peroxide of hydrogen, a body somewhat similar to water, but containing twice as much oxygen as that liquid, and much more unstable. Together with this peroxide of hydrogen camphoric acid is obtained, a substance nearly allied to camphor. Now, it has generally been accepted that pine or fir woods confer a healthful character upon the neighbourhood in which they grow. A remarkable instance of this has been lately related by Mr. R. D. Glover, in which the planting of the Eucalyptus tree in the cloisters attached to an old monastic institution in the Campagna freed the place from the pestilent malaria which had hitherto rendered it desolate and uninhabitable. Mr. Kingzett explains such results by the fact that these trees, and those of a like nature, secrete those particular essential oils which undergo the above oxidation. The turpentine, or other essential oil, is volatilised from the tree, and undergoes a process of oxidation, amongst the products of which are peroxide of hydrogen and camphoric acid. The former is a source of easily evolved oxygen, which, being in the nascent state, acts as a purifier of

the air and a ready oxidiser of putrescent matter; while at the same time the latter acts as a powerful antiseptic. Following out and imitating this natural process, Mr. Kingzett proposes to obtain a valuable purifying agent as a deodoriser, disinfectant, and antiseptic by artificially oxidising turpentine. This solution, which contains the soluble products of the oxidation, consisting of the two bodies already mentioned, possesses the above named properties, and has appropriately been named "Sanitas."

Echo, Feb. 13.—FIR AND PINE TREES.—Sir,—In Friday's issue you print a portion of Mr. C. T. Kingzett's lecture at the Society of Arts, in which he alludes to these trees, and their healthy influence on the air. I can bear grateful testimony to their effects. After residing here three weeks, and trimming some firs, a most "painful chest complaint" began to leave me, which for twenty years no medicine, or the climate of Arch-achon, Pau, or Nice, had the slightest effect. I am now quite well, without the sight of medicine for two years. This common is thickly planted with firs. I invite invalids' attention to its benefits. Land is cheap. Butterflies appeared Wednesday last.—THOMAS HARFIELD, Crookham-common, Farnham, Surrey.

DIRECTIONS FOR HOUSE USE.

In order to keep the air pure, and to destroy any noxious odour or disease-bearing germs, "Sanitas" should be kept in an open shallow vessel. This is especially important for sick-rooms and water-closets.

"Sanitas" should also be freely applied to ash-pits and drains.

Water-closets should be sluiced with water containing "Sanitas."

DIRECTIONS FOR FARM PURPOSES.

The ammonia constantly evolved from urine and manure heaps is readily fixed by the use of "Sanitas," which is best applied through a watering-can.

Carcases and hides, and all sorts of refuse, are entirely preserved by the use of "Sanitas." To disinfect stables, cowsheds, sheepfolds, piggeries, poultry-houses, &c., "Sanitas" should be sprinkled about and allowed to stand where possible in open vessels.

"Sanitas" is the best preventative in all infectious diseases of cattle, such as lung plague, foot and mouth disease, foot rot, distemper and mange of dogs, canker and grease of horses, &c. The diseased parts should be washed continually with "Sanitas," and this should be freely used to prevent further infection. As an internal remedy for cattle it should be diluted with its own bulk of water, and two or three ounces administered.

DIRECTIONS FOR HOSPITAL USE.

To prevent the spread of infectious diseases, persons already suffering should be sponged with "Sanitas." An excellent way of disinfecting clothes and linen is to expose them to "Sanitas" applied by a spray-producer; or they may be soaked in "Sanitas" without harm, and then washed as usual.

"Sanitas" should also be allowed to stand in open vessels in all hospital wards, and be freely used in the water-closets.

DIRECTIONS FOR PRESERVATIVE PURPOSES.

Meats, *Fish*, and all *animal matters* should be immersed in *odourless* "Sanitas," and only washed immediately before cooking.

Milk should be mixed with about 1 or 2 per cent. of *odourless* "Sanitas," and in this way, even in the hottest weather, it may be kept liquid and sweet, and admits the removal of the cream after several days.

Beers are likewise preserved from growing flat, acid, or mouldy by the addition of a small percentage of *odourless* "Sanitas."

Billstickers' Paste may be readily preserved fresh and good a great length of time by the addition of a little "Sanitas."

"SANITAS" FOR VESTRY PURPOSES.

For watering the roads and streets, several gallons of the "Sanitas" sold for that purpose should be charged into the carts containing the water.

All public urinals, &c. &c. should be also washed down daily with "Sanitas." Sewers should be sluiced down with it likewise.

For further and more detailed DIRECTIONS FOR USE see separate sheet.

PRICES.

Bottles, first quality only (for domestic uses)

1s., 1s. 6d., 2s. 6d.

Per Gallon, first quality	... ...	20s.
,, second ,,	... ...	10s.
,, third ,,	... ...	5s.

ODOURLESS "SANITAS" AT SAME PRICES.

TOILET "SANITAS"	4s. per bottle.
"SANITAS" for BREWING PURPOSES	5s. per gallon.

For TESTIMONIALS & detailed **DIRECTIONS FOR USE**, see separate sheets.